CURA

MICROCOMPUTER RESOURCES

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cura

Center for Urban and Regional Affairs

INTRODUCTION

CURA has developed a substantial collection of microcomputing resources. These resources include hardware, software, and data bases to perform an enormous number of useful tasks. These resources are available to any person working on a CURA project. This guide is meant to be a resource directory. More information about any of the information contained herein is available through documentation at CURA. In addition, personnel is available to consult on the use of any of these resources. No one person is knowledgeable about all resources. Contact assistant director Will Craig for referral.

This directory is arranged into three chapters. The first chapter (p. 2) is on available software. This is what makes a computer do a task and is the most important resource to the average user. The second chapter (p. 14), one that should be growing, lists existing data bases available for general usage. The third chapter (p.16) is a listing of available hardware.

This is a dynamic field with options and costs changing weekly. In such an environment, a document such as this goes out of date quickly. We will attempt to revise it as needed to include new resources and drop the obsolete. With new editions hereby promised, the reader is invited to comment and make suggestions for future versions of this document.

CHAPTER 1: SOFTWARE

"Software" is what tells the machine to work and how to proceed. These are the computer instructions, the computer program. Each piece of software is designed to perform a specific task. Given the amount of effort that went into producing each piece of software, the price is very low. No software may be copied for use outside the CURA shop. The capabilities of each of our software packages are mentioned briefly below. For ease of reading and finding software you might need, the software is organized by type.

1. WORD PROCESSING

Word processing software provides a way to produce, correct, format and print text. Text can range in length from single page letters to book-length reports. All word processing systems have basic text input and editing functions. Most have ways to remove, move or copy blocks of text. There are many ways to format the text and most programs try to show you what the printed output will look like while still on the monitor, though what you see is never exactly what you get. Word processors also have mail-merge capa-

bilities where the name and address can be merged from a list to a form letter; this allows personalized form letters.

A. XyWrite

XyWrite has become the word processor of choice at CURA for most applications. It is a system with many capabilities. It works well with the laser printer. It is fairly easy to learn the basics, but more complex page formatting and operations take time to learn, and the manual is of only limited value. It creates plain ASCII files which makes the program useful for data entry and for creating files to be transferred to other software or computer systems. XyWrite has mail-merge capabilities.

B. Wordstar

Once considered the word processing standard, and still the most widely used word processor for microcomputers. It is a complete system, with easy to follow menus, but it is less efficient than XyWrite and others. It is not able to fully utilize the laser printer, but for basic tasks it works fine. Wordstar includes a mail-merge module.

C. Word

Word, like the others, is easy to get started with, but difficult to master. Word's main advantage is that it can fully utilize all the capabilities of the laser printer including a near-typeset look. This program, too, has print merge capabilities and includes a spelling checker.

D. Wordproof

This is a spelling checker which works best with files created with XyWrite. It has a 125,000 word dictionary and a thesaurus. It works by

checking each work in the text. When it finds one it does not recognize the program offers alternative spellings of the word; the correct one can then be inserted into the text. It is useful to correct typos but does not find misused words that are spelled correctly.

2. SPREADSHEETS

Spreadsheets are designed as tools for financial record keeping and analysis. They are basically a table of rows and columns with cells at each intersection. Each cell can be treated independently, but each row is usually an entry or record. Complex mathematical formulas can be placed in different cells to calculate summary information. When the value of a cell is changed, all the other cells that are affected by that value will also be recalculated.

A. Multiplan

Multiplan is a basic spreadsheet program that is fairly easy to learn and use, but lacks some of the speed and bells and whistles of other programs.

B. Lotus 123

Lotus is the most popular spreadsheet. It allows large spreadsheets, includes a graphics module, and is faster than other spreadsheets. But it is also more complex and difficult to master.

3. DATA BASE MANAGEMENT SYSTEMS

Data base management systems are designed to help organize large amounts of data. This can range from a mailing list to an inventory system, or a bibliography. Information in a data base is organized into records and fields. A record is one item, a single name and address, a field is part of a

record, the last name or the city. Data base systems have ways to access subsets of records and only certain fields (all the last names in Iowa). The data base can be sorted on fields or combinations of fields (zip code and state). Output, in the form of reports, can be generated for various needs (mailing labels, form letter headings).

A. dBase III

dBase III is a complete, powerful, and complex program. It can easily do all the tasks mentioned above and much more. It is a command driven system, so to operate it efficiently, the commands and their syntax must be memorized. A command might look like this: LIST FIELDS LASTNAME, FIRSTNAM FOR STATE='IA'. Fields are of a fixed length (chosen when the data base is created) so the information in those fields must be able to fit in the pre-defined length. Also part of dBase is a programming language which allows further customization of the data base system.

B. PC File III

PC File is an easy to use system with the main characteristics of dBase. It is menu driven, there are fixed length fields, you can sort on various fields and generate various types of reports. It does not have the programming language, it runs slowly compared to dBase, and the size of the fields and records, as well as the number of records, are limited. PC File is good for simple mailing list systems or other tasks where it does not pay to spend the time learning dBase.

C. FYI

FYI is a free-field data base system with a maximum of three fields, but nearly unlimited information in each. Annotated bibliographies can be done in

FYI, or text can be indexed for searches by FYI. FYI is not good where the data needs some structure. A word processor is used for the data entry and for designing output reports (Wordstar and XyWrite will work, Word will not). FYI is menu driven and easy to use.

D. Notebook II

Notebook II is a free-field data base with up to forty fields in each record and each record can be about ten pages long. Searches can be done for information in each field or in a combination of fields. The data base can be sorted by field. Report formats are fairly flexible. Notebook is good for organizing bibliographies or research notes; it will work on mailing lists and other data bases. It is menu driven and fairly easy to use, though report formats cause some trouble.

4. INTEGRATED SOFTWARE

Integrated software is a single package that contains the tools that most people use. The core tools include word processing, data base, spreadsheet, graphics and communciations. In an integrated package the user can move from one module to the other quickly and bring pieces together in a final report.

A. Framework

This package includes word processing, spreadsheet, data base, graphics, communications, and an outline to tie it all together. Data can easily be transferred back and forth between the spreadsheet and data base, graphs can be made instantly from the spreadsheet or data base, and the numeric tables can be transferred into text. Data from dBase III can easily be transferred into Framework. Because of the many operations there are limitations. The word processer, while adequate, does not have many of the formatting features

of "stand alone" programs. The spreadsheet is very slow and is limited in size, as is the data base. Considering all of its operations, Framework is fairly easy to learn the basics and fun to use, but it would take a great deal to master all of its features.

5. GRAPHICS

Graphics can be worth 1,000 words for a report whether written or oral. Several packages include graphics as a option for output including SPSS, Lotus, and Framework. Two packages are specifically designed to yield graphical output, and are described below. The third package is actually a reference to a service bureau. For an oral presentation, this output can be printed, then copied to an overhead transparency with the CURA Xerox machine. Alternative-ly, Xerox transparencies can be loaded directly into the laser printer and the transparency made directly. Slides can be made by photographing this output or by using the 3M Meeting Graphics Service.

A. Chart

This business graphics package includes forty-five default graph types and the flexibility to generate other types beyond. Standard types include variations of bar charts, scatter charts, and pie charts. Publication quality output can be generated using the laser printer. See attached example.

B. Atlas-AMP

This is a mapping package for creating shaded maps or dot maps (e.g. 1 dot = 1,000 jobs). The user controls patterns and class breaks. Labels and values can be superimposed on the map. As of August 1985, only a state boundary file of the United States exists, but other levels of mapping will be added soon. Screen dumps and plotter drawings are the two output options.

See attached example.

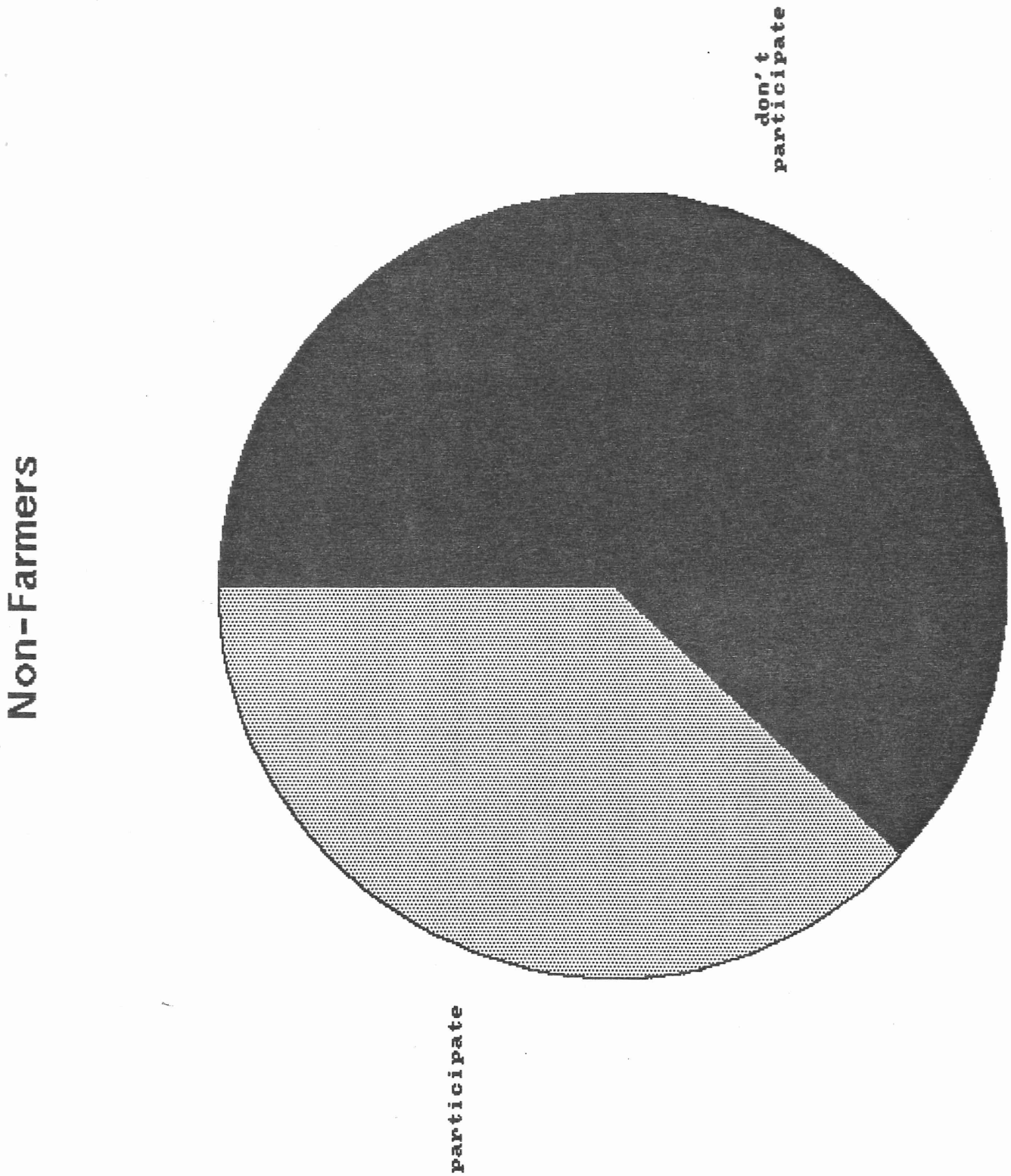
C. 3M Meeting Graphic Service

Our Philanthropy Project subscribes to this service which allows the user to graph his own data and obtain final results on a color slide. The user selects the graph type (including those from Chart and title/headline slides from a catalogue). Data is transferred using a microcomputer and modem. Slides, costing $19 to $27 each, are returned by mail within several days.

D. Others

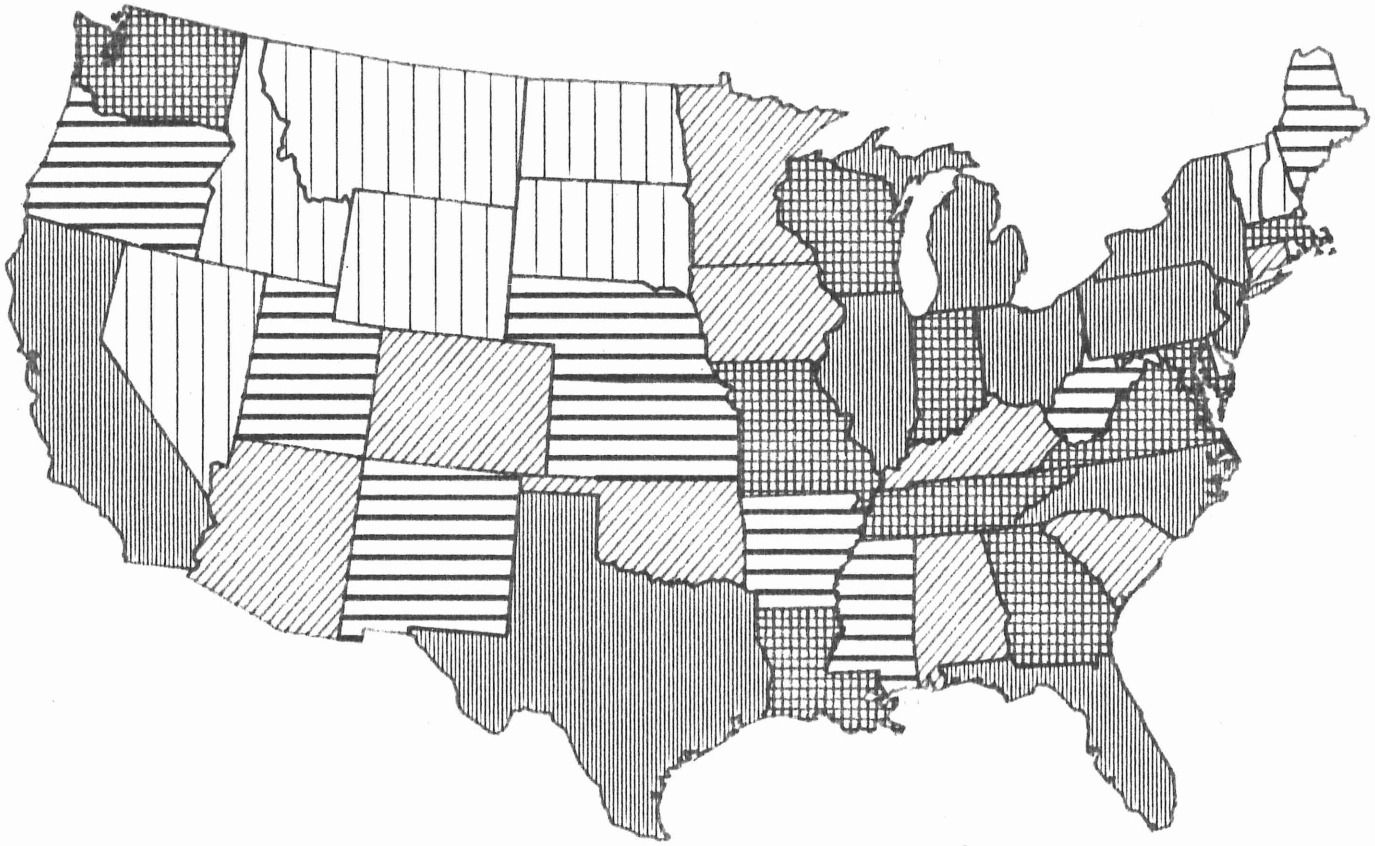
Lotus 123 and Framework each have graphic capabilities. They are designed to take specified data from the spreadsheet and create a graph. There are four basic styles of graphs. The programs do not have nearly as much flexibility as Chart, but they provide an easy way to get a quick graph from a spreadsheet that has already been created. SPSSPC has the ability to create histograms and scatter plots using IBM's graphic character set.

SAMPLE CHART OUTPUT



THIS IS THE TITLE AREA

This is the space for the sub-title



Tot Pop (000)

470 to 944

944 to 2633

2633 to 4076

4076 to 5737

5737 to 23668

6. DATA ENTRY

Though numerous means can be used for entering raw data into the computer, CURA has two programs specifically written for data entry. Both Autoida and Keypunch can be used to create a data set for analysis by the microcomputers or for use on the University's mainframe systems. A third major option is to use a data base management program. Other options might include using a text or word processor or using a spreadsheet program like Lotus 123. Most software packages will accept data base files prepared on such programs, especially when the format of the file is some standard like ASCII. A few programs demand that data be entered directly or through a conversion program.

A. Autoida

This program was designed for entering questionnaire data. It includes range edits and branching dependent on responses. The screen displays the question and possible answers, the operator responds using the questionnaire, that answer is checked and recorded, and the next appropriate question is displayed. A key and powerful feature is that SPSS control cards are generated in addition to the data file.

B. Keypunch

With this program, the microcomputer emulates an old-time keypunch, only the results are stored on disk rather than on punch cards. A key feature is that a control card can be utilized forcing appropriate column skips, alpha vs. numeric fields, etc. This program also includes a verification option.

C. dBase

dBase III can also effectively be used for data entry in some

applications. But the complexity of the software sometimes makes the data entry task more difficult than need be if the data is going to be exported to some other analysis package.

7. STATISTICAL ANALYSIS

Many programs have some statistical capabilities including the spreadsheet programs, the data base programs, and even the graphics programs. Only one has the range and flexibility to meet all but the most unique needs.

A. SPSSPC

This is the microcomputer version of the popular SPSS. It includes enormous flexibility for data recoding and transformation in addition to fifteen popular statistical functions. Besides the popular functions of frequency distribution and cross tabulations, SPSSPC adds new functions of cluster analysis and log-linear models. The program has two major advantages over the mainframe computer version (as well as many smaller advantages); it has graphic output and it is interactive.

8. COMMUNICATIONS

Communications software is used to manage telephone links between two computers. The telephone links are usually made through modems. The software turns the PC into a "smart terminal" for another "host" computer. After logging on, the PC acts like a dedicated terminal for the host computer, but files can be transferred from one computer to the other and back. Thus an SPSS file can be sent to the Cyber system for analysis, and the results file can be transferred back to the PC and saved on the disk. Or when using online data base such as DIALOG information can be downloaded to your computer.

A. Com

Com was developed by the University computer system for micro-mainframe communication. It is particularly good for communication with the Cyber and VAX systems, but it is not as good with non-university systems.

B. PC-Talk

PC-Talk is a menu-driven general purpose program with a number of useful features. For example, it can automatically dial and log on to a host computer system. This program is sufficient for most communication needs.

9. UTILITIES

Utilities are programs which help maintain files on the computer and solve particular problems. CURA has copying programs, Norton Utilities and others. Norton Utilities has the most general use. The main program can be used to un-erase files that have been accidentally erased.

10. MISCELLANEOUS

(More here in future editions)

CHAPTER II: DATA BASES

Often the most expensive part of a research project is collecting the data and getting it into the computer. CURA has developed and purchased data bases which are available for use by others. They are both general and specific in nature.

1. CITY AND COUNTY DATA BOOK

All the data that can be found in the published report; this includes dozens of statistics from many data sources including the Census of Population, Census of Agriculture, and much more. We have purchased the 1983 CCDB for all U.S. states and for Minnesota counties and cities over 25,000.

2. MINNESOTA SCHOOL DISTRICTS

For each of Minnesota's 437 school districts, we have data from the 1980 U.S. Census of Population and 1982-83 State Department of Education reports. These twenty-three data items may be characterized as documenting three areas: the community environment, the school environment, and financial information.

3. METROPOLITAN AGRICULTURAL PRESERVES SURVEY

Over 500 farmers responded to a survey about their current and anticipated farming activity. The sample was split between those currently enrolled in the Ag Preserves Program and those who have not. Each group was also asked its feelings towards the program and suggestions for improvement.

4. DIALOG

DIALOG is an enormous bibliographic and resource data base. CURA subscribes to this service. Different data bases within DIALOG focus on

different topics. This service is accessed over telephone lines through a modem. Peggy Wolfe has the protocol for this system. There is a charge for this service.

5. MISCELLANEOUS

Numerous surveys and research projects have transferred to the IBM-AT. Example items include items 2 & 3 above and the surveys of community arts organizations. General CURA policy allows open access to these data once they have served their primary purpose.

CHAPTER III: HARDWARE

"Hardware" means equipment. There are different kinds of equipment for different tasks; this is trivial, e.g. a printer is printing out results, a screen is for viewing. Less obvious is the fact that different printers have unique characteristics that make them better for some tasks than others. This aspect is true for all different types of hardware. An overview of CURA's equipment and the uniqueness of each are summarized below.

1. COMPUTERS

All machines are IBM or compatible. Unless otherwise stated, the machine is running under the DOS 2.0 operating system. Printer features are listed in section 4 below. All non-reserved machines can be scheduled for access.

A. IBM-AT (one--in statistics grad student's office)

This machine has 512K of memory plus a 20 megabyte hard disk for storing lots of data and programs. It runs DOS 3.0. Attached to this machine are a modem, a graphics printer, and a graphics display. The machine is perhaps ten times faster than any other microcomputer in CURA. Absolute priority is given to statistical and graphic applications.

B. IBM-PC (two--in production area)

These machines have 320K of memory. They are connected to a Hewlett-Packard laser printer for high quality output. These are reserved for production/word processing personnel during office hours. One machine may be available at times; contact Chris McKee, principal secretary.

C. IBM-PC (one--library)

Like the above machines, this PC has 320K of memory. It is connected to an Okidata printer which provides high speed output, though not of as high quality as the laser printer. Absolute priority is given to librarian Peggy Wolfe and her data entry staff. Also connected to this machine is a modem.

D. Z-160 (two--reception area and data entry room)

These machines are fully IBM compatible. They have 320K of memory each. A unique aspect of the Zenith machines is that they come with graphics capabilities. This model (Z-160) differs from the other Zenith computer in being transportable; after closing up the machine, the entire unit (sans printer) can be carried by one person. Senior office specialist Ann Kelley and her staff have absolute priority to the reception area machine.

E. Z-150 (one--Shirley Bennett's office)

Same as above machines, except full size, not transportable. Has 640K memory. Bennett has absolute priority on this machine.

F. IBM-PC (one--in Barbara Lukermann's office)

Uses DOS 1.1 operating system. Absolute priority given to Lukermann and her assistants.

2. MODEMS

CURA has two modems which allow computers to communicate over telephone lines. The units are identical: both Hayes 1200 smart modems. These allow high speed communication. One modem is connected to the library IBM-PC, the other to the IBM-AT.

3. MONITORS

Each computer comes with a monitor for displaying text. All but the two Z-150s have a 12-inch diagonal screen; those transportable machines have 9-inch screens. All IBM machines show green characters; all Zenith machines, amber. These colors are by our choice; either color was available from both manufacturers.

In the IBM design, the monitor shows wonderful resolution of characters, but nothing in graphics. CURA has one graphics monitor, but is monochrome, not color. That monitor is attached to the IBM-AT. The Zenith machines also have graphics capabilities.

4. PRINTERS

Printers vary in speed and in quality of output, only two can produce letter quality.

Printer	Location(s)	Quality	Width	Speed
HP Laserjet	production area	letter	8 1/2"	300 cps
Qume	Monica's office	letter	14"	45 cps
HP Thinkjet	Reception area	draft	8 1/2"	140 cps
HP Thinkjet	data entry room	draft	8 1/2"	140 cps
Okidata Microline 92	library	draft	8 1/2"	160 cps
Epson MX100	Shirley's office	draft	14"	80 cps
Okidata Microline 93	Barbara's office	draft	14"	160 cps
IBM Graphics	AT room	draft	8 1/2"	80 cps

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